

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2004/011306

A. CLASSIFICATION OF SUBJECT MATTER

Int.Cl⁷ C12N15/56, C12N5/10, C12P19/04, A01H5/00, C08B37/08, A61K31/728

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int.Cl⁷ C12N15/56, C12N5/10, C12P19/04, A01H5/00, C08B37/08, A61K31/728

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

JSTPlus (JOIS), SwissProt/PIR/GeneSeq, Genbank/EMBL/DDBJ/GeneSeq, BIOSIS/WPI (DIALOG)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
<u>X</u> Y	Graves M.V. et al., Hyaluronan synthesis in virus PBCV-1-infected chlorella-like green algae, Virology, 1999, Vol.257, No.1, pages 15 to 23	<u>20</u> 1-19
<u>X</u> Y	DeAngelis P.L. et al., Hyaluronan synthase of chlorella virus PBCV-1, Science, 1997, Vol.278, No.5344, pages 1800-3	<u>20</u> 1-19
Y	JP 2001-521741 A (THE BOARD OF REGENTS OF THE UNIVERSITY OF OKLAHOMA), 13 November, 2001 (13.11.01)	1-19

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search
29 September, 2004 (29.09.04)

Date of mailing of the international search report
12 October, 2004 (12.10.04)

Name and mailing address of the ISA/
Japanese Patent Office

Authorized officer

Facsimile No.

Telephone No.

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Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item 1.b of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, the international search was carried out on the basis of:

a. type of material



a sequence listing



table(s) related to the sequence listing

b. format of material



in written format



in computer readable form

c. time of filing/furnishing



contained in the international application as filed



filed together with the international application in computer readable form



furnished subsequently to this Authority for the purposes of search

2. ☒ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

3. Additional comments:

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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
(See extra sheet.)

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

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Claims 1, 3, 6 to 8, 14, 16 and 18 relate to a method of producing hyaluronic acid by transforming a plant cell with the use of a vector containing a DNA encoding hyaluronate synthase and then growing the plant cell; claims 2, 4 to 5, 9 to 13, 15, 17 and 19 relate to a method of producing hyaluronic acid by transforming a plant with the use of a vector containing a DNA encoding hyaluronate synthase and then growing the plant; and claim 20 relates to hyaluronic acid.

As the results of the search, however, it is found out that "a method of producing hyaluronic acid by transforming a host with the use of a vector containing a DNA encoding hyaluronate synthase and then growing the host" is not novel because of having been reported in document 'JP 2001-521741 A (THE BOARD OF REGENTS OF THE UNIVERSITY OF OKLAHOMA) 13 November, 2001 (13.11.01), Claims 39 to 41'.

As a result, "a method of producing hyaluronic acid by transforming a host with the use of a vector containing a DNA encoding hyaluronate synthase and then growing the host" falls within the category of prior art and, therefore, the above common matter cannot be referred to as a special technical feature in the meaning within the second sentence of PCT Rule 13.2.

Thus, there is no matter common to all claims.

Since there is no other common matter seemingly being a special technical feature in the meaning within the second sentence of PCT Rule 13.2, no technical relevancy in the meaning within PCT Rule 13 can be found out among these groups of inventions differing from each other.

Such being the case, it is obvious that claims 1 to 20 do not comply with the requirement of unity of invention.